

SOLUTION AT A GLANCE: CHESAPEAKE COLLEGE: ON-CAMPUS SOLAR ENERGY AND STORAGE

SECTOR

Education

BARRIER

Partnering with my utility

TOOL TYPE

Case Study

BUILDING TYPE

College or university

TECHNOLOGY

Energy Storage, Solar PV

OVERVIEW

Chesapeake College literally rose from the fields of the Mid-Shore. The college's mission is to serve the residents of Kent, Queen Anne's, Caroline, Talbot and Dorchester Counties.

Chesapeake's geographic reach is large – almost 20% of the land mass of Maryland – but population rural – 3% of Maryland's total population. With such low population density, the college has had to develop its own solutions for the provision of municipal services that are found in more suburban and urban areas, such as fresh water, wastewater, and broadband capability in addition to their power needs.

Chesapeake College has been exploring renewable energy sources since 2011, when it installed a 50 kW wind turbine on campus. Its new Strategic Plan furthered this commitment by prioritizing on-campus solar PV power generation. The school secured a power purchase agreement (PPA) for a 1.8 MW ground and carport-based installation, with initial denial from the local utility regarding interconnection to the grid. The college and the utility then met to discuss the rationale for that decision. From that discussion, a mutually beneficial approach was derived that would allow the solar project to go forward while also supporting a new real-time weather monitoring and PV control test project desired by the utility. An interface controlled by the utility monitors power production of

the array along with utility grid data, and then modulates output from the array in 1 percent increments up to a maximum of 3 percent. The benefits for this are two-fold: 1) for the utility, this improves grid stability, and 2) for the college, they no longer need to shut their array down at times when the grid may be at risk of becoming unstable, which would most likely occur when the array is operating at its greatest efficiency.

This partnership has since grown to include a battery storage and partial campus microgrid project via a MOU with Pepco Holdings Inc. Once all elements of the project are finished, Chesapeake College anticipates it will have the potential to provide for additional grid stability: allowing the college's solar array to power the college even at times when the grid is down, while providing additional resilience for at least two buildings on campus that serve as critical infrastructure during times of crisis for the larger regional community.

Outcome

Through this project as well as other educational and facilities-based initiatives, the college was able to:

1. Generate over 50% of its energy needs from renewable sources
2. Reduce annual energy costs by 40% which is the equivalent of 60 full time tuitions per year.
3. Reduce power consumption by approximately 25% annually and become the first community college in the nation to be designated a Better Building Challenge Achiever
4. Achieve LEED Platinum Status for its Health Professions and Athletics Center

The success of the solar project has emboldened the college to pursue several sustainability initiatives outside of energy, including stormwater management, single use plastic reduction, and recycling. Finally, the college has also committed to achieving a campus-based zero carbon footprint in future years as technologies and resources permit.